

## ***Root Cause Table***

Possible Root Causes Of High Catheter Utilization and Potential Interventions To Reduce The Long-Term Catheter Rate	
<b>POSSIBLE ROOT CAUSES</b>	<b>POTENTIAL INTERVENTIONS</b>
<b>ESRD Management-Related Factors</b>	
Lack of valid information about long-term benefits of permanent internal access (AVF or AVG) and that catheter placement at certain sites may limit future access options	Increase educational awareness of benefits of permanent internal access (AVF or AVG) for patient's optimal quality of life. Adopt belief that the preferred permanent vascular access is AVF.
Lack of knowledge about K-DOQI Guidelines for vascular access	Provide recent copy of K-DOQI Practice Guidelines and familiarize facility staff with contents
Failure to establish a vascular access program and coordinator to implement and follow-up.	Establish a vascular access program and select a coordinator or team for implementation and follow-up. Integrate into facility's QI program.
Failure of nephrologist, surgeon, or ESRD team to educate patients (preferably pre-dialysis) about risks/benefits of vascular access options and need to protect potential access sites	Provide patient education, preferably pre-dialysis or at the beginning of dialysis, about risks/benefits of vascular access options. Adopt belief that the preferred permanent vascular access is AVF.
Late referral of patient by nephrologist (or primary physician) to vascular surgeon for permanent access placement, including waiting for completion of transplant evaluation before making access plans. Nephrologist did not refer patient to vascular surgeon in timely manner	Use vascular access assessment and referral algorithms. Refer patient to facility vascular access coordinator (or team) for assessment and follow-up.
Lack of surgeon preference for AVFs Lack of surgical training/experience in placing AVFs. Catheter placed surgically because it is faster and technically easier to accomplish. Lack of surgeon availability - catheter placement done by radiologist or nephrologist	Adopt belief that the preferred permanent vascular access is AVF. Encourage education/expertise in placing AVFs. Refer patient to surgeon with expertise in placing AVFs.
Failure of nephrologist/ESRD team to work with patient on long- term access plan	Formalize vascular access management program in the unit which includes an access plan for each patient, educate all team members about the program and algorithms. Refer patient to facility vascular access coordinator or team for assessment and follow-up.
Lack of communication between nephrologist and	Formalize vascular access management program in

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surgeon for preference to have AVFs placed	the unit, educate all team members about the program and algorithms, emphasize communication. Follow access plan for each patient Routine review/evaluation of all accesses, with special attention (higher frequency) on catheters
<b>Patient-Related Factors</b>	
Patient not informed of access options and risks and complications of long-term catheter use	Refer patient to facility vascular access coordinator for assessment and follow-up. Formalize vascular access management protocol in the unit, educate all team members to use the protocol and algorithms, monitor staff for consistent use of the protocol. Provide patient education regarding access options and long-term catheter-associated risks.
Medical reasons (i.e., medical instability, coagulopathy, cardiomyopathy, vascular abnormalities or problems, hypotension, obesity, anatomy, diabetes, IV drug abuse, smoking etc.)	Refer patient to surgeon to confirm that patient is not a candidate for permanent vascular access. Maintain documentation from surgeon in patient medical record. Encourage behavioral changes where appropriate.
Fear of needle sticks, pain, or body disfigurement from AVF/AVG	Provide patient education and counseling with social worker (or externally by a psychologist). Refer patient to facility vascular access coordinator for assessment and follow-up.
Patient refuses referral for permanent vascular access placement, including failure to make or keep appointments with surgeon	Refer patient to facility vascular access coordinator for assessment and follow-up. Provide patient education regarding catheter-associated risks (incidence of infection rates, increased morbidity, potential for inadequate dialysis, and early mortality). Request social worker involvement for counseling and/or active involvement in resolving barriers to surgical appointment
Complication of permanent access requiring temporary catheter placement	Continue to utilize algorithms to monitor patient on monthly basis and renew assessment.
Temporary catheter (placed during access intervention) overlooked because of lack of catheter intervention process	Formalize vascular access management program in the unit, educate all team members about the program and algorithms. Refer patient to facility vascular access coordinator for assessment and follow-up.

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Fistula/graft maturation in progress	Continue to monitor patient on monthly basis and renew the assessment using algorithms. If fistula fails to mature within 90-days, refer patient to facility vascular access coordinator for assessment and follow-up
No permanent access established	Formalize vascular access management program in the unit, educate all team members about the program and algorithms. Refer patient to facility vascular access coordinator for assessment and follow-up.
<b>Dialysis Facility Staff-Related Factors</b>	
Lack of tracking system for monitoring catheters	Formalize vascular access management program in the unit, educate all team members about the program and algorithms. Refer patient to facility vascular access coordinator for assessment and follow-up.
Lack of knowledge about DOQI and K/DOQI Guidelines for vascular access	Provide recent copy of K-DOQI Practice Guidelines and familiarize facility staff with contents
Staff preference for catheters (i.e., easier to initiate treatment, comfort levels, faster to access, etc.), lack of skill in cannulating AVFs/AVGs, high staff turnover, or inadequate staffing number/mix	Adopt belief that the preferred permanent vascular access is AVF. Formalize vascular access management protocol in the unit, educate all team members to use the protocol and algorithms, monitor staff for consistent use of the protocol. Provide adequate training and experience in accessing AVFs/AVGs to preserve longevity. Provide adequate staffing for patient treatment completion and safety.
<b>Other Factors</b>	
Insurance problems (i.e., delayed or out-of-network referral, or lack of approval for permanent access placement)	Refer patient to facility vascular access coordinator for assessment and follow-up. Utilize social services support to secure insurance approvals or seek other financial assistance.